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Search for non Standard Model Higgs boson decays in events with displaced muon-jets

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New light bosons that couple weakly to the standard model (SM) are predicted in various extensions of the standard model (BSM). Examples include supersymmetric (SUSY) theories with extended Higgs sectors (NMSSM) or with a hidden valleys (dark SUSY). In these models the light bosons can be produced directly in the decay of a Higgs boson, or as part of the decay chain of SUSY particles. Depending on the branching ratio, the exotic decays of the SM-Higgs can either hide the Higgs boson in standard analyses, slightly change the SM Higgs boson production cross section at the LHC. Therefore, direct searches for non-SM decays of the Higgs boson are the fastest way to understand the nature of the Higgs. Either it will confirm its SM character, or it will rule out a whole array of BSM scenarios. We present status of the search at CMS for non-SM Higgs boson decays in events with displaced muon-jets.

Oral or Poster Presentation

Oral

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